

U. S. BUREAU OF MEDICINE AND SURGERY
NAVY DEPARTMENT

CORRESPONDENCE COURSE FOR NAVAL PHARMACISTS

(SUPPLEMENT TO U. S. NAVAL MEDICAL BULLETIN)

N. M. S. 127240 (63)



Nos. 3, 4, and 5

- 3. Duties in Connection with Summary Courts-martial
- 4. Clerical Work in the Medical Department, U. S. Navy
- 5. Food Inspection

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DEPARTMENT OF THE NAVY,
BUREAU OF MEDICINE AND SURGERY,
Washington, D. C., April 15, 1920.

In conducting the correspondence course for naval pharmacists, in accordance with the Bureau of Medicine and Surgery letter No. P-6C, of June 20, 1919, an attempt will be made to lay particular emphasis on the clerical duties, commissary duties, Hospital Corps instruction, and other activities of the naval pharmacist, and on such pharmaceutical and chemical knowledge as may be of importance to the Hospital Corps.

In the preparation of papers Nos. 3, 4, and 5, compiled by Lieut. P. F. Dickens, Medical Corps, United States Navy, acknowledgement is made to Lieuts. A. F. Bigelow and W. M. Benton, Medical Corps, United States Navy, Mr. J. F. Rohrbach, and Chief Pharmacist N. L. Saunders for their assistance in the collection of the data and the preparation of these papers.

H. H. LANE,
Lieutenant Commander, Medical Corps, United States Navy.

CORRESPONDENCE COURSE FOR NAVAL PHARMACISTS.

(SUPPLEMENT TO U. S. NAVAL MEDICAL BULLETIN.)

SUMMARY COURTS-MARTIAL.

(The following outline of court-martial proceedings is not intended in any way to take the place of the official "Naval Courts and Boards," but simply to help members of the Medical and Hospital Corps to become familiar with the subject in a general way. Our readers are cautioned that this paper is not to be quoted as authority and that departmental orders appearing from time to time in the future may make it necessary to correct or throw out entirely some of the suggestions here given.)

Under an act of Congress dated August 29, 1916, commanding officers of naval hospitals and hospital ships (when so empowered by the Secretary of the Navy) are authorized to order summary and deck courts-martial and inflict the punishment which a commander of a naval vessel is authorized by law to inflict upon all enlisted men of the naval service attached to his command, whether for duty or as patients.

It therefore behooves all pharmacists, both permanent and temporary, and in fact all hospital corpsmen, to have a general knowledge of the procedure preliminary to a trial by summary court, and of the proceedings of the trial itself, as at any time the question of trial by summary court may be put squarely up to them and they will be expected to arrange a trial by summary court and probably, if a commissioned or warrant officer, to serve as a member or recorder of the court.

Article 26 (p. 35, Naval Courts and Boards—1917) of the Articles for the Government of the Navy, with subsequent statutory enactments relating thereto, are quoted, as this article is authority for trial by summary court-martial and establishes jurisdiction:

Summary courts-martial may be ordered upon petty officers and persons of inferior ratings, by the commander of any vessel, or by the commandant of any navy yard, naval station, or marine barracks to which they belong, for trial of offenses which such officer may deem deserving of greater punishment than such commander or commandant is authorized to inflict, but not sufficient to require trial by a general court-martial. Act of August 29, 1916, provides that summary court-martial may be ordered upon enlisted men in the naval service under his command by the commanding officer of any brigade, regiment, or separate or detached battalion, or other separate or detached command, and, when empowered by the Secretary of the Navy, by the commanding officer or officer in charge of any command not specially mentioned in the foregoing: *Provided*, That when so empowered by the Secretary of the Navy to order summary courts-martial the commanding officer of a naval hospital or hospital ship shall be empowered to order such courts and deck courts, and inflict the punishment which the commander of a naval vessel is authorized by law to inflict, upon all enlisted men of the naval service attached thereto, whether for duty or as patients.

An important point in connection with this is, that the commanding officers of certain naval hospitals and hospital ships have express written authority from the Secretary of the Navy to order trials by summary court-martial.

Jurisdiction is definitely fixed in the act of August 29, 1916, in the words, "Upon all enlisted men of the naval service attached thereto, whether for duty or as patients."

When a trial by summary court-martial is decided upon, a precept (order convening the court) must be prepared and a specification covering the offense drawn up, which specification when signed is forwarded to the recorder and a copy delivered to the accused. Great care must be exercised in the preparation of any paper in connection with a summary court-martial, as the omission of a seemingly unimportant phrase may constitute a grave technical error which might be of sufficient importance to nullify the legality of the entire proceedings.

THE PRECEPT.

An order convening a summary court-martial should read as follows (see p. 389, *Naval Courts and Boards—1917*):

UNITED STATES NAVAL HOSPITAL,
New York, N. Y., December 8, 1919.

From: Commanding officer.

To: Lieutenant Commander G..... L. W.....s, M. C., U. S. Navy.

Subject: Convening summary court-martial.

1. A summary court-martial is hereby ordered to convene at this hospital on Friday, December 19, 1919, or as soon thereafter as practicable, for the trial of such persons as may be legally brought before it.

2. The court will be constituted as follows:

Lieutenant Commander G..... L. W.....s, M. C., U. S. Navy,

Lieutenant F..... C. E.....s, M. C., U. S. Navy,

Lieutenant D..... G. R.....n, M. C., U. S. Navy, members, and

Pharmacist H..... B. N.....r, U. S. Navy, recorder.

C. H. T. L.....s,
Captain, M. C., U. S. Navy,
Commanding U. S. Naval Hospital, New York, N. Y.

CONSTITUTION OF THE COURT.

Article 27, Articles for the Government of the Navy, states: "A summary court-martial shall consist of three officers not below the rank of ensign, as members, and of a recorder." The commander of a ship may order any officer under his command to act as such recorder. This permits commissioned warrant officers to serve as members and a warrant officer as recorder. In connection with this see sections 224 and 404 to 408, *Naval Courts and Boards—1917*, and General Order 296.

The original precept and orders altering same, if there be any, shall be prefixed to the record of the first case tried under its authority, and if more than one case be tried thereunder, shall be referred to in the record of each case subsequent to the first.

DEPARTMENT OF THE NAVY,
OFFICE OF THE JUDGE ADVOCATE GENERAL,
Washington, December 23, 1919.

From: The Judge Advocate General.

To: The Secretary of the Navy.

Subject: Change in naval courts and boards.

1. It is recommended that the following be added as paragraphs (b) and (c) to section 406, page 232, *Naval Courts and Boards, 1917*:

(b) Rank of members. Except in cases of emergency or where the exigencies of the service do not permit, no officer shall be ordered as senior member of a summary court-martial who is below the rank of lieutenant, nor as member or recorder of such court who has been a commissioned officer less than two years prior to the date of convening the same.

(c) Where the convening authority finds it impracticable to comply with the above paragraph he shall set forth the circumstances in a letter to the department, a copy of which shall be attached to each case tried by a court constituted otherwise.

Approved:

(Sgd.) JOSEPHUS DANIELS,

(Sgd.) GEO. R. CLARK.

THE SPECIFICATION.

The preparation of specifications is a subject of too great length and complexity to be given more than very brief consideration here. The reader is referred to pages 75 to 133, inclusive, Naval Courts and Boards—1917, for the details regarding the preparation of specifications and specimen specifications.

Definition: A *charge*, in naval law, designates an alleged offense in general terms, while a *specification* sets forth the facts constituting the same. (Sec. 53, Naval Courts and Boards—1917.)

“A separate specification shall be used for each distinct offense, and two or more such specifications may be joined for a single trial. The specimen forms for specifications set forth in Chapter VI shall be followed in the preparation of specifications for summary courts-martial, except the specification shall not be laid under any particular specification, and the caption shall read: ‘Specification of an offense preferred against A..... B. C....., seaman, U. S. Navy;’ or, if there is more than one specification, ‘Specifications of offenses, etc.’ In the latter case the several specifications shall be paragraphed and consecutively numbered, as in the case of several specifications for trial by general courts-martial.” (Sec. 411, Naval Courts and Boards—1917.) Article 26, A. G. N., makes triable by summary court-martial offenses committed by enlisted men which an officer empowered to order a summary court-martial “may deem deserving of greater punishment” than those prescribed in article 24, A. G. N., “but not sufficient to require trial by general court-martial.” So, when the nature of an offense charged is of such character that the punishment which a summary court-martial is authorized to inflict is not adequate (see art. 30, A. G. N.), the offender should be brought to trial before a general court-martial, unless it is impracticable to do so. In this connection it is to be noted that the offense of “fraudulent enlistment, and the receipt of any pay or allowance thereunder,” was by statute declared an offense against naval discipline and made punishable by general court-martial. (27 Stat., 716.) Jurisdiction over this offense, therefore, is expressly limited to a general court-martial. (Sec. 412, Naval Courts and Boards—1917.)

“The original specification(s) shall be prefixed to the record in each case.” (Sec. 413, Naval Courts and Boards—1917.)

The law permits as many specifications to be preferred as are necessary to provide for every contingency in the evidence. However, as a matter of policy and not of law, the use in naval practice of two or more specifications is not approved when the identical facts are made the basis of both, but, on the other hand, if a man absenting himself without leave also commits another offense in connection therewith which is not covered by the charge of absence without leave he might also be charged with conduct to the prejudice of good order and discipline, or as the case may be. An example of this would be when a man absents himself without leave and remains absent in order to avoid an evolution as coaling ship, landing force, etc. (See sec. 61, Naval Courts and Boards—1917.)

A specification must include a statement of material facts which constitute the offense, and not by the statement of a mere conclusion of law. Thus, if it is desired to charge a man with having committed the crime of theft, the specification should set forth the acts upon which the charge is based and not merely allege that theft was committed by such a man at such a time and place. (See sec. 62, Naval Courts and Boards—1917.)

A specification must, on its face, allege a fact which violates some law, regulation, or custom of the service, in order to charge an offense of which judicial notice can be taken. (See sec. 63, Naval Courts and Boards—1917.)

In drawing up the specification all extraneous matter is to be carefully avoided, and nothing is to be alleged but that which is culpable and which the prosecution is prepared to substantiate before a court-martial, and each offense of a different kind shall be made the subject of a distinct specification. (See secs. 64 and 65, Naval Courts and Boards—1917.)

When an offense is a neglect or disorder not specially provided for, it shall be charged as “scandalous conduct tending to the destruction of good morals” or “conduct to the prejudice of good order and discipline.” (See sec. 67, Naval Courts and Boards—1917.)

Certain abbreviations are authorized, as: “U. S. S.” for United States ships; “U. S. Navy” for United States Navy; “U. S. Marine Corps” for United States Marine Corps; “U. S. Army” for United States Army; “a. m.” and “p. m.” for antemeridian and postmeridian, respectively. Christian names other than the first may be indicated by initials. Dates and time may be expressed in figures; “12.30 a. m.” and “12.30 p. m.” shall be used to indicate thirty minutes after midnight and thirty minutes after meridian. “Sums of money mentioned in specifications should be set out in both words and figures.” Except as indicated in this section, the use of figures or abbreviations in charges or specifications is prohibited. (See sec. 68, Naval Courts and Boards—1917.)

The time and place of the commission of the offense must be clearly set forth; it is proper to allege “on or about” a certain day, “at or near” a certain place, “at about” a certain hour.

In the case of offenses against the person or property of individuals, the Christian name and surname, with the rank, and station or duty of such person, if they have any, must be stated if known. If not known, the party injured must be described as “a person unknown.” (See sec. 74, Naval Courts and Boards—1917.)

It is not sufficient that the accused be charged generally with having committed an offense, as, for instance, with habitual violation of orders or neglect of duty, but the particular acts or circumstances constituting a specific offense must be distinctly set forth in the specification. Where intent enters into the offense it must be set forth with certainty. (See sec. 75, Naval Courts and Boards—1917.)

In cases where objectionable language forms the gist of the offense, the language must be alleged. In preparing a specification to cover the charge of theft, care should be taken to state, at least approximately, the value of the articles alleged to have been stolen, as the degree of punishment permitted by the prescribed limitations varies in accordance therewith. (See secs. 78 and 80, Naval Courts and Boards—1917.)

When incompetency is alleged it is essential to set forth the particular acts or neglects upon which the specification is based. In bringing a man to trial before summary court-martial it is necessary that more than one instance of such incompetency be alleged. (See sec. 81, Naval Courts and Boards—1917.)

In time of war add at the end of each specification, or at such other part as may be appropriate, the averment, “the United States then being in a state of war.”

Following are two specimen specifications covering the offenses “absence without leave” and “absence over leave,” the most commonly met with in trial by summary court-martial at naval hospitals. (See Naval Digest, p. 64, sec. 47.)

ABSENCE WITHOUT LEAVE.

Specification.—In that A. H. S.h, seaman, U. S. Navy, did, on or about December 21, 1919, without leave from proper authority, absent himself from his station and duty, at the U. S. Naval Hospital, New York, N. Y., to which hospital he had been regularly assigned, and did remain so absent therefrom for a period of about three days and four hours, at the expiration of which he surrendered himself at the aforesaid hospital (the United States then being in a state of war).

Approved: December 28, 1919.

To be tried before the summary court-martial of which Lieutenant Commander G..... L. W.....s, Medical Corps, U. S. Navy, is senior member.

C. H. T. L.....s,
Captain, M. C., U. S. Navy,
Commanding U. S. Naval Hospital, New York, N. Y.

ABSENCE OVER LEAVE.

Specification.—In that A..... H. S.....h, seaman, U. S. Navy, having been granted leave of absence from his station and duty at the U. S. Naval Hospital, New York, N. Y., to which hospital he had been regularly assigned, said leave to expire on December 20, 1919, did fail to return to his station and duty as aforesaid upon the expiration of said leave, and did remain absent therefrom without leave from proper authority for a period of about five days and thirteen hours, at the expiration of which he surrendered himself at the aforesaid hospital (the United States then being in a state of war).

Approved: December 30, 1919.

To be tried before the summary court-martial of which Lieutenant Commander G..... L. W.....s, Medical Corps, U. S. Navy, is senior member.

C. H. T. L.....s,
Captain, M. C., U. S. Navy,
Commanding U. S. Naval Hospital, New York, N. Y.

DUTIES OF THE RECORDER BEFORE THE TRIAL.

(Art. 27, A. G. N.—Secs. 418 to 422, inclusive, and secs. 250 to 259, inclusive, Naval Courts and Boards—1917.)

The convening authority may order any officer under his command to act as recorder of a summary court-martial.

When the recorder is notified that a case is to be tried before the court of which he is recorder, he is furnished with the specification(s) in the case and other papers in connection therewith.

It is his duty to ascertain that the accused has received a copy of the specification(s) preferred against him and when the same was received. He shall critically examine the specification(s) in order that prior to the arraignment he may advise the convening authority of any technical inaccuracies that he may discover.

Before the court assembles the recorder should also see that a suitable place is provided for the sessions of the court, and see that writing material and copies of the specification(s) are provided for the members of the court.

The recorder shall summon all witnesses both for the prosecution and the defense. The statutory authority to compel attendance of civilian witnesses, set forth in sections 122 to 132, Naval Courts and Boards—1917, is not construed as extending to summary courts-martial. The attendance of a civilian witness is optional.

He should make a preliminary examination of the witnesses for the prosecution and systematize his plans for the trial. The recorder should confer with the accused as soon as practicable after the latter has received a copy of the specification(s). The recorder should scrupulously avoid even the slightest suggestion to the accused that he should plead guilty to anything charged against him. He should inform the accused that he is entitled to counsel; that he may have a reasonable time in which to prepare his defense; and of his rights in regard to having witnesses summoned for his defense. The recorder should inform the accused as to the probable witnesses to be called for the prosecution, although it is not necessary to inform him what testimony may be expected from them. If in discussing the case with the accused it develops that he might have any good defense whatever, discussion of the case should end at once and the accused be advised to secure counsel.

When the accused has secured counsel all negotiations by the recorder should be conducted through that counsel. In the event that the accused has no counsel, the recorder shall protect his interests, having in mind, however, his duties as prosecutor. He shall advise the accused against advancing anything which may tend either to criminate him or prejudice his cause; he shall see that no illegal evidence is brought against the accused, and shall assist him in presenting to the court in proper form the facts upon which his defense is based, including such evidence as there may be in extenuation or in mitigation, as well as evidence of previous good character and conduct.

The judge advocate (counsel) should before trial carefully explain to the accused that he may, besides introducing witnesses in his behalf, either (1) take the stand and testify under oath or (2) make a statement not under oath; that should he take the stand, he may be subjected to a rigorous cross-examination as set forth in section 161; and that should he not under oath make a statement which contains averments of material facts, such averments can not be considered as evidence or accorded evidentiary weight by the court. (Sec. 311.) In advising the accused as to his right to take the stand, the judge advocate should carefully refrain from influencing the accused in this respect except as required by section 255.

The above is section 153 (a), Naval Courts and Boards—1917, and refers to the recorder of a summary court-martial as well as the judge advocate of a general court-martial.

THE MEMBERS.

(See secs. 415, 416, 236, and 247, Naval Courts and Boards—1917.)

Summary court-martial duty shall be performed in addition to other duties, unless the convening authority directs otherwise. The members are named in the precept according to rank and take seat accordingly. The senior member at the head of the table and other members at his right and left alternately.

The members of a court as a body formally decide on all questions as to the admissibility of evidence and pass upon all questions submitted to the court during the trial; also the members of the court and the recorder, who sign its proceedings, are responsible for the correctness of same.

For detailed information regarding the duties of members the reader is referred to sections 236 to 247, Naval Courts and Boards—1917.

THE SENIOR MEMBER.

(Secs. 248, 249, and 417, Naval Courts and Boards—1917.)

When a summary court-martial meets and when it adjourns the senior member shall cause the same to be reported to the convening authority. He also transmits the record of proceedings to the convening authority.

The senior member is responsible for the dignified and orderly conduct of the proceedings of the court and is empowered to keep order; he shall order that the court be cleared for the purpose of reaching a decision in all cases where questions arise; he speaks and acts for the court. He is also responsible that all persons called before the court are treated in a becoming manner and in all cases of impropriety, whether in language or behavior, shall, if necessary, report the offender to the convening authority. The senior member administers the oaths to the recorder and to the witnesses.

CLERK, STENOGRAPHER, AND INTERPRETER.

(Secs. 269 to 273, and 425, Naval Courts and Boards—1917.)

With the sanction of the convening authority a court-martial may avail itself of the services of a clerk, stenographer, or interpreter, but such persons shall in all cases be sworn; they should not be allowed to be present in closed court.

THE ACCUSED.

(Secs. 263, 264, and 423, Naval Courts and Boards—1917.)

The accused should be present during all the proceedings of a court-martial held in open court.

COUNSEL FOR THE ACCUSED.

(Secs. 265 to 268 and 424, Naval Courts and Boards—1917.)

As a rule, the accused should secure counsel of choice, but when an accused desiring counsel is not otherwise provided application should be made to the convening authority, who should detail a suitable officer to act as such counsel. Sometimes the request of the accused to have a certain person act as counsel is refused for some cause and some one else is appointed. Under such circumstances the record should always show the grounds for refusing the original request of the accused. (No particular counsel may be forced upon the accused against his wishes.)

ORDERLY.

(Sec. 426, Naval Courts and Boards—1917.)

At the request of the senior member of the court the convening authority shall direct an orderly to be detailed to attend the meetings of the court and execute its orders.

PLACE AND TIME OF MEETING.

(Secs. 215 to 217 and 401, Naval Courts and Boards—1917.)

Courts-martial are assembled and held in a convenient part of a ship, navy yard, or other place as may be ordered. Hours for holding sessions of a summary court-martial should be selected with a view to as little interference with the performance of routine duties as the administration of justice and the interests of the accused and the service permit.

CHANGES IN COURT.—DEFICIENCY OF MEMBERS.

(Secs. 225, 407, and 408, Naval Courts and Boards—1917.—R. 3910 (3) Navy Regulations, 1913.)

OATHS.

(Secs. 428, 429, 429 (a), 430, Naval Courts and Boards—1917.)

After the accused has announced that he does not object to any member of the court each member and the recorder shall be sworn. The recorder shall first administer the following oath to the members:

Oath for members.—You, A. B.; C. D.; E. F., do swear (or affirm) that you will well and truly try, without prejudice or partiality, the case now depending, according to the evidence which shall be adduced, the laws for the government of the Navy, and your own conscience. (A. G. N. 28.)

The senior member shall then administer the following oath to the recorder:

Oath for recorder.—You, A. B., do swear (or affirm) that you will keep a true record of the evidence that shall be given before this court and of the proceedings thereof. (A. G. N. 28.)

The recorder shall then administer the following oath to such of the following named as are employed:

Oath to the stenographer (clerk).—You, A. B., swear (or affirm) faithfully to perform the duty of stenographer (clerk) in aiding the recorder to take and record the proceedings of the court either in shorthand or in ordinary manuscript.

Each witness before a summary court-martial must, prior to giving his testimony, be sworn (or affirmed) by the senior member as follows:

Oath for witnesses.—You do solemnly swear (or affirm) that the evidence you shall give in the case now before this court shall be the truth, the whole truth, and nothing but the truth, and that you will state everything within your knowledge in relation to the charges. So help you God (or, this you do under the pains and penalties of perjury). (A. G. N. 41.)

MAKING UP THE RECORD.

(Secs. 82 to 92, Naval Courts and Boards—1917.)

Except under extraordinary and unusual conditions of service, records of all courts shall be typewritten, except the finding(s) and sentence, which shall be in the handwriting of the recorder.

The record shall be typewritten on the paper known as typewriter cap (I 5311 (2)), 8 by 13 inches in size. But one side of the paper shall be used, leaving a margin of 1 inch on each side and $2\frac{1}{2}$ inches at the top of each leaf. Each page shall be numbered in the middle of the margin at the lower edge. In making up the record it sometimes happens that the pages are not numbered consecutively, as, for example, where a page is inserted and numbered 73-a, 360 $\frac{1}{2}$, etc. Where this occurs a notation shall be placed at the bottom of the preceding page calling attention to this fact, as, for example, "next page numbered 73-a" or "next page number 360 $\frac{1}{2}$," etc. When the conditions mentioned above render it necessary that the record be written in longhand, the same size paper (8 by 13 inches) shall be used and, as in the case of the typewritten record, but one side of the paper shall be used; the penmanship must be clear and legible and the record free from erasure or interlineation except as authorized in the following sections. Before the record is forwarded to the convening authority all pages, documents, and exhibits must be securely bound together by at least two through fasteners at the top margin, the heads of the fasteners uppermost, and care shall be taken to see that the fasteners are through each page, document, and exhibit. Should the exhibits be objects that do not permit of being secured in the manner indicated, they shall be otherwise attached to the record so as to prevent the possibility of loss, or, if necessary, forwarded under separate cover. (Sec. 83, Naval Courts and Boards—1917.)

If corrections should be necessary they shall, where made, be initialed by the judge advocate or the recorder. An undue number of corrections, or a lack of neatness in making them, will be sufficient cause for returning a record for rewriting. (Sec. 88, Naval Courts and Boards—1917.)

In lengthy cases where the number of pages in the record exceeds twenty (20), the record should be preceded by an index. (Sec. 91, Naval Courts and Boards—1917.)

NOTE.—As a cover sheet for summary courts-martial, use uniform cover sheet N. J. A. 109, a supply of which may be obtained from the office of the Judge Advocate General of the Navy upon request.

At most receiving ships and in the office of the commandant of the various naval districts, there are to be had blank forms which may be used in the preparation of summary court-martial records by merely inserting the name of the accused, date of trial, names of members and recorder, the date upon which the accused received a copy of the specification(s) and other appropriate data.

These forms are exceedingly useful in cases where the plea of "guilty" is entered, and the pharmacist who is acting as recorder of a summary court-martial is advised to obtain a supply of them from the naval prison, Portsmouth, N. H.

THE TRIAL.

(Pp. 389 to 399, Naval Courts and Boards—1917.)

Case of J. X. Y.,
Seaman Second Class, U. S. Navy.

FIRST DAY (if case covers more than one day).

U. S. NAVAL HOSPITAL,
NEW YORK, N. Y.,
Monday, December 15, 1919.

The court met at 10.00 a. m.

Present:

Lieutenant Commander G..... L. W.....s, M. C., U. S. Navy,
Lieutenant F..... C. E.....s, M. C., U. S. Navy, and
Lieutenant D..... D..... G. R.....n, M. C., U. S. Navy, members, and
Pharmacist H..... B..... N.....r, U. S. Navy, recorder.

For variations in case of absence of a member see page 390, Naval Courts and Boards—1917.

The recorder introduced F..... E. D..... as stenographer (clerk), stating the authority whereby he was appointed as such (in case a stenographer is employed).

The accused entered and stated that he did not wish counsel.

Var.: The accused entered and requested that Lieutenant J.....s B.....s, M. C., U. S. Navy, act as his counsel; Lieutenant B.....s entered.

For other variations see page 390, Naval Courts and Boards—1917.

The recorder read the precept (and modifications thereof), original hereto prefixed, marked "A."

Var.:..... original prefixed to the record in the case of J..... F. D....., hospital apprentice second class, U. S. Navy.

Var.:..... and an order relating thereto, prefixed hereto, marked "....."

The accused stated that he did not object to any member.

See variations, page 345, Naval Courts and Boards—1917.

The recorder is not subject to challenge on any grounds. (Sec. 420, Naval Courts and Boards—1917.) It is the duty of the recorder before the members are sworn, to ask the accused if he objects to any member of the court, and a minute of this must be entered on the record.

For further details concerning challenge, see sections 277 to 282, Naval Courts and Boards—1917.

Each member and the recorder were duly sworn.

Var. 1: Each member, the recorder, and the stenographer (clerk or interpreter) were duly sworn.

The recorder first swears the members.

The senior member swears the recorder.

The recorder swears the stenographer, clerk, or interpreter.

The senior member swears the witnesses as they enter to give testimony.

For oaths see page 235 and 236; sections 428 to 431, inclusive, Naval Courts and Boards—1917.

The accused stated that he had received a copy of the specification(s) preferred against him on December .., 1919.

As soon as practicable after it has been decided to bring him to trial the accused shall be furnished with a copy of the specification(s) preferred against him. After he has received this copy he shall, before he is brought to trial, be allowed reasonable time to prepare his defense, but he may be tried at any time after he announces in open court that he is ready for trial. The record of proceedings must show by admission of the accused or by other proof that at a stated time prior to the trial he received a copy of the specification(s) preferred against him.

The recorder asked the accused if he had any objection to make to the specification(s).

The accused replied in the negative.

After the court has been organized (sworn), the accused is asked if he has any objections to make to the specifications. If he does not object to any feature of them, and the recorder reports no defect in them and if the members of the court, after carefully scrutinizing them in closed court, find no defect in them, the court pronounces the charges and specification(s) in due form and technically correct. (For the procedure in case of error see sec. 56.) An entry to this effect must be made upon the record. After this stage of the proceedings the accused is stopped from objecting to any feature of the charges and specifications except an error in substance. (See sec. 57 (3).) Since an error in substance is one of such nature as to vitiate the entire proceedings, it may be noted at any stage of the trial it manifests itself. (See sec. 235, Naval Courts and Boards—1917.) (In connection with this see secs. 55, 56, and 57, Naval Courts and Boards—1917.)

The court was cleared.

The court was opened. All parties to the trial entered, and the senior member announced that the court found the specification(s) in due form and technically correct.

For variations in the event of the court finding the specification(s) not in due form, or not technically correct, see page 346, Naval Courts and Boards—1917.

The accused stated that he was ready for trial.

See variations, page 347, Naval Courts and Boards—1917.

No witnesses not otherwise connected with the trial were present.

Witnesses are examined apart from each other; no witness is allowed to be present during the examination of another who is called before him. Before the specifications are read to the accused the senior member of the court directs all witnesses to withdraw, and not to return until they are officially called. At the outset of each day's proceedings the direction to withdraw shall be repeated to all who are cited as witnesses and may chance to be present. Obviously these instructions do not operate in any case to exclude members, judge advocate, the accused, or his counsel when it is necessary for them to be called as witnesses. When the court has finished with a witness, he shall be directed to withdraw, and a minute shall be entered on the record to the effect that the witness withdraws in order to show that two witnesses are not in court at the same time. (Sec. 140, Naval Courts and Boards—1917.)

See variations, page 347, Naval Courts and Boards—1917.

The recorder read the specification(s), original prefixed, marked "-----," and arraigned the accused as follows:

After the court has been organized (sworn) and both parties are ready to proceed, the recorder will read the specification(s) separately to the accused, and in order, and ask him how he pleads to each, "guilty" or "not guilty". For procedure where two or more persons are tried in joinder see section 293, Naval Courts and Boards—1917.

Q. J. X. Y., seaman second class, U. S. Navy, you have heard the specification preferred against you; how say you to the specification, guilty or not guilty?

A. Not guilty, (guilty), (guilty except as to the words "-----," to which, not guilty), (the accused stood mute).

Should the accused make a preliminary motion before pleading to the issue, see page 348 and sections 294 to 300, Naval Courts and Boards—1917.

Var. 1. Q. J. X. Y., seaman second class, U. S. Navy, you have heard the specifications preferred against you; how say you to the first specification, guilty or not guilty?

A.

Q. To the second specification, guilty or not guilty?

A.

FORM OF PROCEDURE IN THE EVENT OF A PLEA OF NOT GUILTY BEING ENTERED.

(In the event of the accused pleading guilty omit until the statement "The surrebuttal ended" is reached.)

The prosecution began.

Var. the prosecution offer no evidence.

A witness for the prosecution entered and was duly sworn.

Var.: A member (recorder) was called as a witness for the prosecution and was duly sworn. (See sec. 139 and 139 (a), Naval Courts and Boards—1917.) It will be noted that the senior member swears witnesses.

Examined by the recorder.

1. Q. State your name, rate (rank), and present station.

A. J..... H. Y....., private, U. S. Marine Corps, stationed at the U. S. Naval hospital, New York, N. Y.

2. Q. If you recognize the accused, state as whom.

A. I recognize him as hospital apprentice second class, U. S. Navy, stationed at the U. S. Naval Hospital, New York, N. Y.

3. Q.

A. (It will be noted that the questions asked each witness are given a new series of numbers.)

Cross-examined by the accused (counsel). (See sec. 151, Naval Courts and Boards—1917.)

7. Q.

A.

Reexamined by the recorder. (See sec. 152, Naval Courts and Boards—1917.)

16. Q.

A.

Recross-examined by the accused (counsel). (See sec. 152, Naval Courts and Boards—1917.)

25. Q.

A.

Examined by the court.

40. Q.

A.

Var.: The recorder (counsel for the accused) moved to strike out the answer (words) on the ground (state reason).

The court was cleared. The court was opened. All parties to the trial entered, and the senior member announced that the court sustained (did not sustain) the motion.

In case the court sustains the motion: The court directed that the answer (words) be stricken out.

Neither the recorder, the accused (counsel), nor the court desired further to examine this witness.

See section 154, Naval Courts and Boards—1917.

The witness verified his testimony (was duly warned) and withdrew.

Var.: The witness verified his testimony and resumed his seat as (member) (recorder) (senior member) (See sec. 140, 175, and 177, Naval Courts and Boards—1917.)

Witnesses should be examined apart from each other. When the court finishes with a witness, he shall be directed to withdraw, and a minute shall be entered on the record to the effect that the witness withdraws in order to show that two witnesses are not in court at the same time.

The recorded testimony of a witness shall be read to him in order that he may verify, correct, or amend it.

Witnesses may be warned not to converse on matters pertaining to the trial.

A witness for the prosecution entered and was duly sworn.

Examined by the recorder.

1. Q. State your name, rate (rank), and present station.

A.

Var.: In case of a civilian witness:

1. Q. State your name, residence, and occupation.

2. Q. If you recognize the accused, state as whom.

A.

3. Q.

This question was objected to by the accused (a member) on the grounds (state reason).

The recorder replied

The court was cleared. The court was opened. All parties to the trial entered, and the senior member announced that the court sustained (did not sustain) the objection.

If objection is not sustained:

3. Q.

A.

Neither the recorder, the accused, nor the court desired further to examine this witness.

The witness verified his testimony (was duly warned) and withdrew. The prosecution rested.

The court then, at ---- p. m., adjourned until ---- a. m. to-morrow, Friday (until ---- a. m., Monday).

See section 291, Naval Courts and Boards—1917.

SECOND DAY.

U. S. NAVAL HOSPITAL,
NEW YORK, N. Y.,
Tuesday, December ----, 1919.

The court met at ---- a. m.

Present, all the members, the recorder (the stenographer), the accused, and his counsel.

For procedure in case of absence of a member see pages 351 and 352, Naval Courts and Boards—1917.

No witnesses not otherwise connected with the trial were present.

The record of proceedings of yesterday (the first day of the trial) (Saturday) was read and approved.

The defense began.

Var.: The accused did not desire to offer any evidence in his defense (or to make a statement) but made an oral statement as follows:

A witness for the defense entered and was duly sworn.

Examined by the recorder.

1. Q. State your name, rate, and present station.

A. -----

2. Q. If you recognize the accused, state as whom.

A. -----

Examined by the accused (counsel).

3. Q. -----

The witness declined to answer on the ground that it might tend to incriminate (degrade) him.

See sections 159-160-163-164, Naval Courts and Boards—1917.

The recorder requested the court to direct the witness to answer.

See section 162, Naval Courts and Boards—1917.

The court was cleared. The court was opened. All parties to the trial entered, and the senior member announced that the witness need not (must) answer the question.

See section 165—Naval Courts and Boards, 1917.

9. Q. -----

A. -----

Cross-examined by the recorder.

10. Q. -----

A. -----

Reexamined by the accused (counsel).

20. Q. -----

A. -----

Recross-examined by the recorder.

25. Q. -----

A. -----

Examined by the court.

30. Q. -----

A. -----

Neither the recorder, the accused (counsel), nor the court desired further to examine this witness.

The witness verified his testimony, was duly warned, and withdrew. The accused was, at his own request, duly sworn as a witness in his own behalf.

See sections 138 and 161, Naval Courts and Boards—1917.

Care must be taken by the court that the accused is not placed on the stand unless he himself requests that he be permitted to testify; otherwise a fatal error is committed.

When an accused elects to take the stand in his own behalf, he is considered as having waived his privilege as to the subject matter of his testimony in chief and must submit to a full cross-examination thereon, notwithstanding that his answers may tend to incriminate or degrade him.

Examined by the recorder.

1. Q. Are you the accused in this case?

A. -----

Examined by the accused (counsel).

2. Q. State the facts concerning the offense with which you are charged.

A.

33. Q.

A.

Cross-examined by the recorder.

5. Q.

A.

Reexamined by the accused (counsel).

10. Q.

A.

Recross-examined by the recorder.

12. Q.

A.

Examined by the court.

15. Q.

A.

Neither the recorder, the accused (counsel), nor the court desired further to examine this witness.

The witness verified his testimony and resumed his status as accused. The defense rested (if the defense has offered evidence).

The rebuttal began (in case there is a rebuttal). (See sec. 206, Naval Courts and Boards—1917.)

A witness for the prosecution in rebuttal entered and was duly sworn.

Examined by the recorder.

1. Q. State your name, rate, and present station.

A.

2. Q. If you recognize the accused, state as whom.

Var.: The witness requested permission to refresh his memory from a memorandum.

The request of the witness was granted. Having been allowed to inspect a memorandum the witness was asked if he could now testify as to his own knowledge.

The witness replied in the affirmative and was permitted to continue with his testimony.

A.

The rebuttal ended.

The surrebuttal began (if there is a surrebuttal).

See section 207, Naval Courts and Boards—1917.

Lieutenant M. G. R., U. S. Navy, a witness for the defense, was recalled as a witness for the defense in surrebuttal and was warned that the oath previously taken by him was still binding.

Examined by the accused (counsel).

1. Q.

A.

The surrebuttal ended.

The above procedure commencing with the statement "The prosecution began" is to be used only in the event of the plea of *not guilty* being entered.

WHEN APPLICABLE TO THE PLEA.

The accused was duly warned as to the effect of his plea(s) and persisted therein (or withdrew his plea of guilty and substituted therefor a plea of not guilty).

For procedure when accused is advised to change his plea or where the court directs that plea be changed, see page 392, Naval Courts and Boards—1917.

The accused did not desire to offer any evidence in his defense (or to make a statement) (but made an oral statement, the substance of which is appended, marked "-----").

When the accused makes a statement, and has no counsel, the following statement shall appear in the record:

The recorder stated to the court that the substance of section 253 (a), Naval Courts and Boards, has been carefully explained to the accused.

Var.: The court was cleared. The court was opened. All parties to the trial entered, and the senior member announced that the court considered the statement of the accused to be inconsistent with his plea of "Guilty". The conflicting plea and statement were brought to the attention of the accused. The accused adhered to the facts set forth in his statement.

The court directed the recorder to proceed with the trial as if the plea of not guilty had been entered.

The trial was finished.

The court was cleared.

The recorder was recalled and directed to record the following finding(s):

NOTE.—The finding to be in the handwriting of the recorder.

The specification proved.

Var.: The specification proved by plea.

Var.: The first specification proved (by plea).

Var.: The second specification proved (by plea).

Var.: The specification not proved and the court does therefore acquit him, the said J..... X.Y., seaman second class, U. S. Navy, of the offense specified.

Var.: The specification proved in part; proved except the words ".....", which words are not proved (and for the excepted words the court substitutes the words ".....", which words are proved).

The recorder stated that he had (no) record of previous convictions, and that the pay of the accused is \$..... a month.

Var.: The recorder stated that he had (no) record of previous convictions, that the pay of the accused in his present rating is \$..... a month, and in his next inferior rating \$..... a month.

In case there is any record of previous conviction, see sections 326 to 334, Naval Courts and Boards—1917, and employ the following procedure:

The court was opened, and all parties to the trial entered.

The senior member announced that the court was ready to receive any record of previous convictions.

Such record having been submitted to the accused and there being no objection, the recorder read from the current service record of the accused an extract showing previous conviction (s), copy appended marked "-----".

See variation, page 360, Naval Courts and Boards—1917.

The recorder shall, immediately after recording the finding, except where such finding has resulted in an acquittal, state whether or not he has any record of previous convictions. If not, an entry to this effect shall be made in the record, but the court need not be reopened. If there be such record, the court shall be opened and the same shall be submitted to the accused for opportunity to object to its admission. If there be no valid objection, the same shall be read by the recorder in the presence of all parties to the trial.

(For information as to introduction of evidence of previous conviction, see sections 326 to 334, Naval Courts and Boards—1917.)

The court was cleared.

The recorder was recalled and directed to record the sentence of the court as follows (the sentence always to be in the handwriting of the recorder):

The court therefore sentences him, J..... X..... Y....., seaman second class, U. S. Navy, to solitary confinement on bread and water for ten (10) days, with full ration every third (3d) day, and to lose pay amounting to thirty-five (35) dollars and ninety (90) cents.

Var. 1: The court therefore sentences him, J..... X..... Y....., seaman second class, U. S. Navy, to be discharged from the U. S. naval service with a bad-conduct discharge.

NOTE.—For other variations see page 396, Naval Courts and Boards—1917.

NOTE (2).—In cases of acquittal upon all specifications, see changes in Naval Courts and Boards No. 3, page 6, adding section 322 (a), as to course to be followed.

Lieutenant Commander, M. C., U. S. Navy, Senior Member.

Lieutenant, M. C., U. S. Navy, Member.

Lieutenant, M. C., U. S. Navy, Member.

Pharmacist, U. S. Navy, Recorder.

In the event of any member recommending clemency, see section 357 and procedure, page 396, Naval Courts and Boards—1917.

The court was opened and proceeded with the trial of A..... B. C....., private, U. S. Marine Corps.

Var.: The court then adjourned to await orders from the convening authority.

The court then adjourned to meet

Lieutenant Commander, M. C., U. S. Navy, Senior Member.

Pharmacist, U. S. Navy, Recorder.

Monthly insurance premium \$.....

Monthly allotment, Form..... \$.....

“Convening and reviewing authorities of summary courts-martial, in acting upon sentences involving loss of pay, will give careful consideration to the effect of Alnav message 94 as modified by Alnav message 22 of 7 February, 1918, and by such other instructions as may be hereafter issued.”

“For the information of the department, convening authorities when acting on all sentences of summary courts-martial involving loss of pay will attach to the record a memorandum statement of the amounts of compulsory allotment and Government insurance premium that are being checked against the pay accounts of the accused, as well as the monthly rate of pay when same is not included in the record of proceedings.” (Sec. 442, p. 238, pars. 2 and 3, Naval Courts and Boards—1917.)

MEDICAL CERTIFICATE.

Use separate sheet and attach to record.

From an examination of J-----X. Y-----, seaman second class, U. S. Navy, and of the place where he is to be confined, I am of the opinion that the execution of the above sentence would not produce serious injury to his health.

Lieutenant Commander, M. C., U. S. Navy.

Whenever any person is sentenced for a period exceeding ten (10) days to confinement on diminished rations, or on bread and water, there must appear on the record of proceedings the certificate of the senior medical officer under the immediate jurisdiction of the convening authority to the effect that such sentence will not be seriously injurious to the health of the prisoner. (In this connection see A. G. N. 33.) (Sec. 364, Naval Courts and Boards—1917.)

ACTION OF CONVENING AUTHORITY.

Use separate sheet; to be attached to record.

See sections 458 to 463, Naval Courts and Boards—1917.

U. S. NAVAL HOSPITAL,
New York, N. Y., December --, 1919.

The proceedings, finding(s) and sentence in the foregoing case of J-----X. Y-----, seaman second class, U. S. Navy, are approved.

C. H. T. L-----s,
Captain, M. C., U. S. Navy,
Commanding U. S. Naval Hospital, New York, N. Y.

In the event of a bad-conduct discharge being awarded, the variation shown at foot of page 397, Naval Courts and Boards—1917, is to be used.

For other forms of action which may be taken by the convening authority see page 398, Naval Courts and Boards—1917.

REVISION OF RECORD.

If in the opinion of the convening authority it is necessary to return the record to the court for revision, he shall take such action prior to his final action thereon. (See form under general courts-martial, pp. 363—365.)

* ACTION OF REVIEWING AUTHORITY.

(When convening authority is not senior officer present.)

See sections 458 to 463, Naval Courts and Boards—1917.

After the approval or disapproval of the convening authority has been attached to the record of proceedings of the court it should be forwarded to the reviewing authority (immediate superior in command) for action.

For definition of “immediate superior in command” and “senior officer present” see Court-Martial Order No. 30 (1916), pages 6–8.

Upon the return of the record of proceedings from the reviewing authority, showing the action of that officer, the finding(s), sentence, and action of that officer and the convening officer are published (read to the accused) and a notation made, usually on the sheet containing the action of the reviewing authority, to that effect as follows:

U. S. NAVAL HOSPITAL,
New York, N. Y., December —, 1919.

Published this date.

Commander, M. C., U. S. Navy, Executive Officer.

Before a summary court-martial is transmitted to the Judge Advocate General (A. G. N. 34) a brief transcript shall be taken therefrom (except in case of acquittal) and furnished to the officer of the deck and the executive officer for entry, respectively, in the ship's log and upon the service record of the man concerned. In the case of a marine the transcript shall be furnished to the marine's commanding officer. This transcript shall comprise:

1. The date of the offense.
2. The nature of the offense.
3. Punishment adjudged as approved by the convening and the reviewing authority.
4. Date of such approval.

If the said punishment be disapproved or mitigated subsequently by the department, an entry to that effect shall be made as soon as notice thereof is received. If bad conduct discharge (of a man not in first enlistment) be included in the sentence, the final action in each case shall be similarly entered. The transcript and entries shall be authenticated by the signature of the commanding officer. (Sec. 465, Naval Courts and Boards—1917.)

ORDER TO PAY OFFICER.

Records of the proceedings of summary courts-martial and deck courts shall show, over the signature of the pay officer having the accounts of the accused, that the loss of pay, if there is any adjudged and approved, has been checked. In order to enable the pay officer to make the necessary certificate, the commanding officer shall forward with the record the requisite order for the checkage; such order shall be in duplicate; one copy shall be sent immediately by the commanding officer direct to the Auditor for the Navy Department. The order shall contain the following information: Name, rate, (rank), date of trial, offense (briefly stated), and sentence as finally approved. If the offense is absence over leave or absence without leave, the dates of the beginning and ending of the unauthorized absence should be stated. In the case of a marine, certificate shall be made by the commanding officer of the marine that the checkage has been entered in the service record book or on the pay roll, as the case may be. (Sec. 464, Naval Courts and Boards—1917.)

Loss of pay, \$-----, checked.

N----- W. D-----,
Commander, S. C., U. S. Navy.

The record is now transmitted to the office of the Judge Advocate General of the Navy.

Following are some of the errors most commonly made in the preparation of summary court-martial records (all pages and sections hereinafter referred to are pages and sections of Naval Courts and Boards—1917, unless otherwise indicated):

1. The specification is not signed by the convening authority. (See Naval Digest, 1916, pp. 68 and 91.)
2. The accused was not asked if he had any objection to make to the specification. (See sec. 414 and p. 390.)
3. The senior member did not pronounce the specification in due form and technically correct. (See sec. 414 and p. 391.)
4. The record does not show, as it should, that the accused was arraigned and pleaded to each specification. (See sec. 433 and p. 391, var. 1.)
5. The plea of the accused has been omitted. (See sec. 433.)
6. The rate of pay of the accused has been omitted. (See p. 395.)

7. The finding of the court has been omitted. (See secs. 318 and 439 and p. 395.)
8. The finding should never be typewritten, but should be in the handwriting of the recorder. (See secs. 439 and 325.)
9. The form of finding should be "The (first) specification proved (by plea). The (second) specification proved (by plea), etc." (See p. 395.)
10. The finding must be free from interlineations and erasures. (See sec. 439 and Naval Digest, 1916, p. 27, under "Alterations.")
11. The sentence should never be typewritten, but should be in the handwriting of the recorder. (See sec. 451.)
12. The sentence must be free from interlineations and erasures. (Same reference as under No. 10.)
13. The amount of loss of pay and not the number of days should appear in the sentence. (See sec. 442 and p. 396.)
14. Numbers in the sentence should always be expressed both by words and figures. (See secs. 355, 451, and p. 396.)
15. The signature of a member of the court has been omitted. (See sec. 451, p. 397.)
16. The medical certificate has been omitted. (See sec. 454, p. 397.)
17. No record of previous service precedes the action of the convening authority. (See sec. 463 and p. 397.)
18. The action of the convening authority has been omitted. (See sec. 486.)
19. The date of the action of the convening authority has been omitted. (See sec. 459 and p. 397.)
20. The action of the immediate superior in command has been omitted. (See sec. 459 and p. 397.)
21. The date of the action by the immediate superior in command has been omitted. (See p. 399.)
22. The publication to the accused has been omitted. (See p. 399.)
23. The checkage of loss of pay has been omitted. (See sec. 464 and p. 399.)
24. The amount of the loss of pay has been omitted from the checkage. (See p. 399.)
25. The checkage of loss of pay is not in accordance with the action of the convening authority (immediate superior in command).
26. The sentence must be written out in full without the use of abbreviations.
27. A specification must on its face allege facts which constitute a violation of some law, regulation, or custom of the service in order to specify an offense of which judicial notice can be taken. If it is desired to specify a violation of a special order local to some particular ship or station, the specification must not only show but must state that the facts constitute a violation of such special order. (See p. 233 and sec. 63.)
28. The time and the place of the commission of the offense specified must be averred in the specification. (See p. 233 and sec. 73.)
29. Where particular words form the gist of the offense, they must be set forth with particularity or declared to be of like meaning and purport. Where objectionable language forms the gist of the offense the objectionable language must be alleged. (See p. 233 and sec. 78.)
30. In specifications alleging unlawful possession of property or theft, the articles must be enumerated and their value and ownership set forth. (See p. 233, secs. 69 and 80, and specimen specifications on pp. 120 and 124.)
31. When incompetency is alleged, it is essential to set forth more than one instance of incompetency. (See p. 233 and sec. 63.)
32. The facts alleged in a specification must constitute an offense of which cognizance can be taken. (See p. 233 and sec. 63.)
33. The specification of each charge, one or more, must be brief, clear, and explicit. The facts, circumstances, and intent constituting the offense must be set forth with certainty and precision and the accused charged directly and positively with having committed it. Each specification of a charge must set forth facts sufficient to constitute the particular offense charged. (See p. 233 and sec. 71.)
34. Certainty as to acts, circumstances, and intent: It is not sufficient that the accused be charged generally with having committed an offense, as, for instance with habitual violation of orders or neglect of duty, but the particular acts or circumstances constituting a specific offense must be distinctly set forth in the specification. Where intent is an ingredient of the offense, it also must be set forth with certainty. (See p. 233 and sec. 75.)
35. Offenses of a perfectly distinct nature must not be included in one and the same specification, but each offense of a different kind shall be made the subject of a distinct specification. (See p. 233 and sec. 65.)
36. An offense is charged by the statement of the material facts which constitute it, and not by the statement of a mere conclusion of law. Thus, if it is desired to charge a man with knowingly having stolen goods in his possession, the specification should set forth the facts and circumstances which make it unlawful and not merely the conclusion that goods were unlawfully in his possession. (See sec. 69 and p. 120, change No. 3.)
37. The signature of the convening authority has been omitted from the order convening the court. This omission invalidates subsequent proceedings, since no written authority for holding the court appears.
38. The punishments provided for in A. G. N. 30 are the only punishments which can legally be adjudged by sentence of a summary court-martial. The exact wording of the punishment provided for in A. G. N. 30 should be followed as closely as possible.

The above common errors are taken from U. S. S. *Southery*, Form N. Y. P. N. H. No. 2.

CORRESPONDENCE COURSE FOR NAVAL PHARMACISTS.

(SUPPLEMENT TO U. S. NAVAL MEDICAL BULLETIN.)

CLERICAL WORK IN THE MEDICAL DEPARTMENT, UNITED STATES NAVY.

DIVISION OF FINANCE.

CLAIMS, AUDITS, AND OFFICE SUPPLIES SECTION.

BUREAU OF MEDICINE AND SURGERY.

The *supply section* of this division has charge of the procurement and distribution of supplies, including office equipment and stationery which may be required to carry on the work of the bureau, the details of which are obviously not necessary in this article.

The *claim section* adjudicates all claims against the Government arising from expenses incurred by the officer and enlisted personnel of the Navy and Marine Corps for medical and hospital treatment while on detached duty and at places where the services of a naval medical officer or naval hospital facilities are not available; also claims arising from expenses incurred in connection with the preparation, encasement, and burial of naval dead when death has occurred at a place where such services are not covered by requisitions and contracts, such as obtain at all naval hospitals at the present time.

It would be impracticable in this paper to explain in detail just when and when not an officer or enlisted man has a legal claim against the Government for expenses incurred for medical and hospital treatment. In the case of an officer the law is explicit and states that "Expenses incurred by an officer of the Navy for medicines and medical attendance shall not be allowed unless they were incurred when he was on duty, and the medicines could not have been obtained from naval supplies, or the attendance of a naval medical officer could not have been had." The aforementioned law may be found in section 1586 of the Revised Statutes and is incorporated in article 4534 (1), Navy Regulations. Paragraph 5 of the same article of Navy Regulations contains practically the same requirements in the case of an enlisted man. However, the difficult part in some of the numerous and diverse claims received is to decide whether or not the claimant was in a duty status within the meaning of the law at the time the expenses were incurred. For instance, the various Comptrollers of the Treasury have consistently held that when an officer or enlisted man is on leave of absence for his own convenience or pleasure and places himself beyond the reach of the facilities provided by Government for his care when sick or injured, any medical expenses that he might incur during such leave are not properly chargeable against the Government. However, when an enlisted man is on leave and becomes ill or is injured and authority is given by his commanding officer for his admission to a civil hospital for treatment, such action on the part of his commanding officer has been held by the Comptroller of the Treasury to constitute a revocation of his leave and places him in a duty status, thereby making the hospital expenses proper charges against the Government.

One more example will help to show apparent contradictions that occur in decisions rendered on claims which, to a person not conversant with all of the facts in the case and the laws, decisions, etc., pertaining thereto, would seem to be identical. If a member of the Navy or Marine Corps, while on duty where the services of a naval medical officer are not available should become ill while in

his regular living quarters, such necessary medical expenses as may be incurred for his treatment are a proper charge against the Government; however, if this same man, after his usual duties have ended for the day, should leave his quarters for the purpose of attending to his own affairs or for pleasure and be injured in an accident of any kind, such expenses as may be incurred for his medical treatment must be borne by himself, the department holding that such injuries can not be construed as having been incurred "in the line of duty."

In a recent decision, dated December 20, 1919, the Comptroller of the Treasury held that dental treatment should now be regarded as included in the term "medical attendance" as that term is used in existing law and regulations with respect to officers or enlisted men of the Navy. The Bureau of Medicine and Surgery therefore in its letter No. 127492 (104) of January 10, 1920, stated that claims for reimbursement of dental expenses would be considered when they were incurred in emergencies when in a duty status where the services of a naval dental officer could not be had and when a naval medical officer, if available, has been consulted.

Prosthetic dental treatment, however, is only allowed when authorized by the Bureau of Medicine and Surgery in advance or in the manner prescribed in its circular letters No. 125471 (82) of August 13 and November 1, 1919. Gold, bridge, and crown work is not regarded as urgent and claims including such work will not be allowed except under the conditions mentioned in preceding sentence.

In construing the laws covering medical claims, numerous decisions and opinions have been rendered by the higher authorities, a thorough knowledge of which and of certain special laws and Navy Regulations, is necessary to insure fair and impartial decisions by the bureau of such claims as come before it. The Bureau of Medicine and Surgery has no discretion in the settlement of these claims, but is governed solely by the facts relevant thereto as covered by the various interpretations and decisions under the law.

The general conditions under which officers and enlisted men are entitled to expenses for medical attention are set forth in article 4534, Navy Regulations, and the various procedures outlined therein should be strictly followed in order to secure favorable action on prospective claims. In this connection, it might be well to state that many claims are received for expenses that have been incurred on account of a disease that has its incipient stages while the individual was in a duty status, but where the actual expenses were incurred while on leave of absence or after separation from the service. Such, however, is not the intent of the law, which specifically states that such expenses may not be allowed unless they were incurred "when he was on duty." The status of the claimant at time of *incurring the expenses*, therefore, and not at the beginning of the disease, is the vital factor on which the adjustment of the claim depends.

Preliminary to the submission of a claim by an enlisted man for expenses for medical or hospital treatment, his injury or illness should be immediately reported to the Bureau of Medicine and Surgery by his superior officer or, where none is present, by the man himself. This report is required principally for the purpose of completing the medical history in each case by the Division of Physical Requirements and Medical Records, but is also valuable for the reason that the necessary data is then available for the determination of whether or not any bills rendered for medical services are proper charges against the Government. The report should include the information outlined in this Bureau's circular letter No. 126963 (92) of December 9, 1919, which requires answers to the following eight specific questions:

1. Name.
Rate.
Station.
2. Diagnosis (from nomenclature).
3. Origin (duty or not; misconduct or not).
4. Circumstance attending incurrence.

5. Was he in a duty status, or performing duty at the time or was it outside of duty hours?
6. Was he on liberty or leave for his own convenience and comfort or for the convenience of the Government?
7. Were the services necessary and authorized by proper authority?
8. Were the services of a Naval medical officer or a Naval hospital available?

When a bill has been submitted by a civilian for services of a medical nature rendered to members of the Navy or Marine Corps for payment by the Government, the same should bear on the face the certificate "Correct and just; payment not received," signed by the payee and, if approved by the officer having cognizance of the case, such approval also should be shown on the face thereof and the bill forwarded to the Bureau of Medicine and Surgery with all the facts obtainable in the case.

Right here it should be stated that the bills forwarded to the Bureau of Medicine and Surgery for settlement, whether in receipted form or not, should have the certificate "Correct and just; payment not received" entered upon the face and signed by the payee. If a claim for reimbursement, the certificate on the receipted bill should be signed by the enlisted man himself. Where payment is to be made direct to the party rendering the services, this certificate should be signed by such individual, and in the case of a firm, corporation or institution the name of the firm, corporation or institution should be placed under the certificate, followed by the *actual* signature and title of the party authorized to sign same.

Examples: Brown and Jones,

By A. C. Brown,

Member of Firm.

United States Steel Corporation.

By John Doe,

Treasurer.

Goodwill Hospital Association,

By Richard Roe,

Superintendent.

When an enlisted man of the Navy dies at a naval hospital or naval station or while on detached duty and is buried in a naval cemetery, all expenses incident thereto are borne by the Government. When the remains are shipped to next of kin, the expense of preparation, embalming, clothing, encasement and transportation to point of destination is paid by the Government; but no expense is allowed by the Navy Department after delivery of the remains at place designated by the next of kin. The act of Congress approved October 6, 1917, however, provides for the payment by the United States of burial expenses not to exceed \$100, which comes under the jurisdiction of the Bureau of War Risk Insurance, Treasury Department, Washington, D. C., to which office communications regarding same should be addressed. When an enlisted man dies while on leave of absence or furlough, the Navy Department will provide for burial in a naval cemetery at Government expense on request of relatives, or friends, but can make no reimbursement for expenses voluntarily incurred by the friends or relatives of the deceased man, the Government's liability under these circumstances being limited to the \$100 allowance under the Bureau of War Risk Insurance.

In the case of an officer, the Navy Department may incur funeral expenses not exceeding \$150, and only when death occurs while the officer is in active service.

It is with claims arising from expenses incurred in connection with the death and funeral of a member of the Navy at other points than where provision has been made for such service that this section of the bureau is concerned. Bills accompanying such claims should be itemized in detail showing the cost of each item listed thereon and certified in the same manner as claims for medical expenses.

General instructions regarding "Persons deceased" may be found in article 4551, Navy Regulations, and sections 10, 11, and 12, Manual for Medical Department.

The work of the *auditing section* includes the auditing of various reports and statements, received principally from hospitals, which are as follows:

Statement of members of Hospital Corps subsisted.—The name of this report is in a way self-explanatory. The appropriation "Provisions, Navy" provides for the subsistence of all the enlisted personnel of the Navy and Marine Corps. Hospital corpsmen on duty at naval hospitals are subsisted from the naval hospital fund. In order therefore that this latter fund may be reimbursed for the cost of such subsistence, it is necessary that reports of this nature be submitted to the Bureau of Medicine and Surgery, where they are audited and forwarded to the Auditor for the Navy Department through the Bureau of Supplies and Accounts with request for transfer of funds. The instructions for the preparation of this statement are printed on the back of the blank form (Hospital Form No. 53), and are plainly stated. However, a number of these reports have to be returned each quarter for correction. The errors usually made are due to failure to carry out the instructions in paragraph 3, especially that part which says "the two entries under this heading ("Period in quarter") should indicate the number of days, inclusive, in quarter xx", the word "*inclusive*" being apparently overlooked in many instances. Another common error is where the total number of days' subsistence is placed in the column "Total" under "Number of days in quarter". This column is for the total number of days the hospital corpsman is attached to the hospital during the quarter and should equal the sum of the three preceding columns in each individual case.

Report of maintenance of injured civilian employees.—This report is similar to the preceding one in that it is intended for the purpose of procuring reimbursement of the naval hospital fund for cost of subsisting injured civilian employees who are patients in hospital. The errors usually made in this report are due to the failure to underscore the date of discharge in cases where patients are continued to the next quarter.

Statement of cost of maintenance.—While no transfer of funds is involved in the handling of this report, it has been necessary to audit same in view of the number of errors made in the entries under items 12 and 13. These errors are purely arithmetical, for the making of which there is no excuse, as the figures can be gone over a sufficient number of times to insure accuracy.

In addition to the foregoing, many miscellaneous bills and reports are received which require auditing and passing of same for transfer of funds between the appropriations involved or preparation of public bills in settlement. For instance, bills are received from the Bureau of Public Health Service for the care of Navy patients in marine hospitals which, after being audited, are forwarded to the Bureau of Supplies and Accounts for payment by transfer of funds. Bills are also received through the Bureau of Public Health Service for care of Navy patients in hospitals under contract with that department, settlement of which is made on public bills prepared in this division. Bills are also received from the various Army hospitals for care of Navy and Marine Corps patients, payment of which is made direct on public bills, also prepared in this division.

From data compiled from reports received in the Bureau of Medicine and Surgery, the number of sick days in the various naval hospitals is computed and credit obtained for the naval hospital fund by quarterly reports submitted to the Bureau of Supplies and Accounts. The adjustment is made by transfer from "Provisions, Navy," at the rate of 50 cents per day.

This section of the Bureau of Medicine and Surgery also has charge of all the printing done by the Government Printing Office for the Medical Department of the Navy, in addition to the internal requirements of the bureau. All of the various blank forms carried at the Naval Medical Supply Depot, Brooklyn, for distribution to vessels and stations on requests made on Form O and Hospital Form No. 41 are procured from the Government Printing Office through this section. On receipt of a request for printing, a requisition is drawn on the Public Printer, which first goes to the Printing Committee for approval and is then forwarded with the necessary "copy" or manuscript to the Government Printing Office. The proof reading in the majority of cases is done in this section, necessary alterations or corrections made, and approved copy returned to the Government Printing Office. After delivery has been completed, a bill for the work is received, which, after being properly receipted, is forwarded to the Bureau of Supplies and Accounts with request for transfer of funds between the appropriations involved.

In accordance with instructions issued by the Secretary of the Navy, all printing that can not be done at the printing plants already installed at navy yards and naval stations must be procured from the Government Printing Office. A copy of the aforementioned instructions was forwarded to each naval hospital and medical officer of shore stations by this bureau's circular letter No. 124842 (82) of August 20, 1919. That part of the instructions which is of prime importance to the party making request for printing is contained in the third paragraph of the Secretary's letter, which is quoted in full as follows:

Where the head of a department at a navy yard, naval station or office is unable to obtain needed items of printing at the nearest navy yard, he will make request in letter form, on the bureau or office of the Navy Department having cognizance, submitting therewith two copies of the required form (unless such forms should be a book, in which case one or two leaves to show printing and ruling wanted will suffice) showing wording, ruling, size, quality and color of paper, the number wanted, how long such number will last, whether proof is desired before final printing, and other pertinent information such as whether the forms are to be padded or not, perforated or punched or not, or serially numbered or not. Such requests must reach the bureau or office having cognizance at least six weeks in advance of the date the printing is required and each request will bear certificate to the effect that there is no standard form that is suitable for the purpose and that the printing can not be obtained at the nearest navy yard.

Copies of all blank forms printed at the Government Printing Office for the use of the Medical Department of the Navy are kept on file in this section, and an effort is made to keep a complete file of all circular letters issued by the Bureau of Medicine and Surgery. The excess supply of printed or multigraphed circular letters are kept on hand to fill later requests for copies. However, when the reserve supply is exhausted no further copies can be furnished, as the clerical force of the Bureau is not sufficient to warrant the additional work of making typewritten copies.

Beginning January 1, 1920, and thereafter, all circular letters issued by the Bureau of Medicine and Surgery will be numbered serially and printed in the publication "Notes on Preventive Medicine," issued monthly by the Division of Sanitation to all medical officers.

CORRESPONDENCE COURSE FOR NAVAL PHARMACISTS.

(SUPPLEMENT TO U. S. NAVAL MEDICAL BULLETIN.)

FOOD INSPECTION.

MILK, MILK PRODUCTS, AND NOTES ON THE PRACTICAL INSPECTION AND STORAGE OF VEGETABLES AND CANNED GOODS.

[Paper No. 5, continued from Paper No. 2, Information and Study Course for Naval Pharmacists.]

Milk is defined: "Lac vaccinum—the fresh milk of the domestic cow, *Bos taurus* (Fam. Bovidae) without modification, and complying with the legal standards of the State or community in which it is sold."

More disease and deaths have been caused by milk than by all other foodstuffs used by man. Practically speaking, this is the only animal food consumed in its raw condition. Milk and milk products constitute 16 per cent of the diet of the United States. Take one city as an example: In New York City the average daily consumption of milk is approximately 1,800,000 quarts, this supply coming from 40,000 dairy farms, located in six States, namely, New York, New Jersey, Pennsylvania, Connecticut, Massachusetts, and Vermont. In times of shortage milk is shipped to New York City from Ohio and Canada.

The vast supply of milk for the cities of the United States is controlled by virtue of municipal laws prohibiting the sale of milk in the cities except under a permit granted by the board of health, revocable for failure to comply with the board of health regulations for that city.

Milk is a natural emulsion. The physical properties and composition of cow's milk are subject to a certain amount of variation, due to the species of the cattle, character and amount of food, time of milking, etc. The milk of all animals contains the same ingredients, but the proportion of these ingredients vary. The average composition of human milk and cow's milk is about as follows:

	Human milk average per cent.	Cow's milk average per cent.
Fat.....	4. 00	3. 50
Sugar	7. 00	4. 30
Proteids.....	1. 50	4. 00
Salts.....	. 20	. 70
Water.....	87. 30	87. 50

In addition, minute quantities of lecithin and nuclein of enzymes and vitamins are also present and probably are of great value as nutritional factors.

Cow's milk contains more protein and less sugar than human milk; this is the reason for modifying cow's milk intended for baby food. By diluting the milk the proportion of protein is reduced and, of course, the proportion of all other solid ingredients. As the sugar of the cow's milk is less, milk sugar is added and often cream, since the diluting process reduces the fat constituent of the cow's milk below that required by a baby.

The reaction of cow's milk when fresh is amphoteric, and the specific gravity ranges between 1.27 and 1.35, this variation being due to the percentage of butter fat, which, being a more concentrated emulsion, rises to the surface of the milk as cream, leaving below it a liquid containing very little fat, but almost all of the casein, sugar, and salts and known as skim milk.

Milk should contain not less than 3.23 per cent of fat and not less than 8.5 per cent of solids not fat. After evaporating the milk to a constant weight on a water bath, the total solids should average 12.5 per cent.

Milk is an ideal and complete food, as it contains all the constituents necessary to sustain life, namely, fuel foods (sugar and fat) and building foods or repair foods (protein, mineral salts, and water).

Milk is an excellent material for the growth and development of bacteria; hence great importance attaches to the methods pursued in producing and marketing it. The bacteria found in milk have various sources; they may come from a diseased cow, they may fall into the milk while it is being drawn, or be introduced at any stage of its handling. It is practically impossible to obtain a milk absolutely free from bacteria. The best milk (market grade A, certified) contains up to 10,000 in each mil, but fortunately the bacteria generally found in market milk are nonpathogenic and are not dangerous unless they are allowed to multiply abundantly, in which case they cause souring, curdling, and putrefaction.

Under favorable temperatures (summer heat) common milk bacteria multiply rapidly and in addition to curdling and souring, poisonous substances are produced by some of these bacteria.

Besides the above-mentioned bacteria, which are practically inevitable inhabitants of all market milk, and which in the different grades of it only vary in number, other and more serious bacterial contaminations may occasionally be found. Of those derived from the cow, the most frequent are streptococci from an inflammation of the udder (suppurative mastitis), and tubercle bacillus from udder tuberculosis, or from tuberculous disease elsewhere in the cow's body. Although the tubercle bacillus found in cows is not of the same variety as that which produces pulmonary tuberculosis in human adults, it is nevertheless capable of producing fatal tuberculosis in infants and small children.

Typhoid fever is not infrequently spread by means of milk, the bacillus being introduced into the milk by the milkers or handlers themselves, among whom there may be an incipient case of typhoid fever or a so-called "carrier."

One of the largest milk-borne epidemics of typhoid fever occurred in the suburbs of Boston in 1908. Four hundred and ten cases occurred, the infection being traced to a milk dealer who continued his work for two weeks after the onset of typhoid fever.

An epidemic of 295 cases at Worcester, Mass., in 1911, was traced to milk infected by a "carrier" who had had typhoid fever 26 years previously.

Asiatic cholera, dysentery, Malta fever, and similar diseases may be spread in the same manner. (The milk transmission of dysentery is still not exact.)

Epidemics of scarlet fever and diphtheria have been directly traced to contaminated milk.

Very large epidemics of septic sore throat have been traced to milk, and for many years the Mediterranean garrisons of the British Army suffered from Malta fever, now known to have been transmitted by goats' milk.

In addition to bacterial contamination, milk may be adulterated in one or more of the following ways:

1. Skimming.
2. Watering which dilutes and adds pathogenic organisms.
3. Both watering and skimming.
4. Adding one or more foreign ingredients as preservatives, coloring matter, etc.

So much has been written about the necessity of safeguarding the milk supply as a general or abstract proposition, and there has been such widespread discussion of the value of pasteurization, etc., that it is doubtful if any of our pharmacists are not more or less cognizant of this matter; however, it is deemed advisable to review in this paper the events leading up to

the control of municipal milk supplies, in an endeavor to present the subject in another form or in order that it may be used as a review by the pharmacists who while acting as commissary officers have studied this subject.

About 1900 the first surveys of the milk situation were conducted by sanitary divisions of the various boards of health, among creameries and shipping stations. The conclusions from these surveys proved (a) the low butter fat; (b) the high bacterial count; and (c), in addition to the almost universal insanitation of buildings and methods, it was found that practically all of the milk was adulterated before being shipped, by skimming off a portion of the supply received from the farmers and the addition of the resultant skim milk to the balance of the supply. Through this system of standardization it was possible to keep within the legal standards for milk solids and butter fat and also reap considerable profit from the sale of cream, which had cost practically nothing.

In briefly alluding to the essential features of the conduct of dairy inspections, mention should be made of the score card, which has been devised to provide definite and comparative information for rating various dairies. The score is based on a given number of points for the following conditions:

1. General condition of health of household.
2. The water supply.
3. Location and construction of stable and milk house.
4. Cleanliness of the stable.
5. Physical appearance and cleanliness of the herd.
6. Precautions taken during milking.
7. Utensils and manner of cleansing.
8. Care given to cooling and storing.

By a competent inspection force, the personal effort of the inspector, and a system of requiring dealers to obtain permits for the sale of milk (and, after inspection, if insanitary conditions are found and no attempt is made to correct faulty conditions, regardless of the State location of the dairy, the dealer purchasing the supply being required to discontinue it under penalty of forfeiting his permit) most municipalities have within the past few years built up a system that affords reasonable assurance of the safety of the milk supply, providing a clean, pure, and safe raw milk.

After repeated warnings had been given by outbreaks of milk-borne typhoid fever, serious consideration was given officially to pasteurization. Prior to this time (1908-1909) pasteurization was known only as a commercial expedient for preserving milk containing an excessive number of bacteria for a sufficient length of time to allow its transportation and sale. The entire procedure consisted merely of exposing the milk to a momentary application of heat, which varied from 120° to 180 F. (flash pasteurization). This sufficed to destroy lactic-acid organisms and prevented souring, even though the milk was not cooled to any appreciable extent.

The laws governing the grading and pasteurizing of milk were promulgated in order to identify for the producer, dealer, and consumer the relative value of the article produced, sold, or bought. Pasteurization is compulsory, not as a substitute for dairy inspection, but as a means of obtaining what can never be secured through inspection, and that is *absolute safety*, by subjecting milk to a degree of heat and length of exposure sufficient to destroy all pathogenic milk-conveyed organisms without serious change in its chemical composition.

Pasteurization will make the milk safe, providing the milk is safeguarded from subsequent contamination.

The system of grading is practically the same in all cities, which requires that all milk fluids must be sold under some one of the following designations and in conformity with the minimum standards given:

Certified milk: From herds tuberculin tested, to contain not more than 10,000 bacteria per mil, at time of delivery to consumer.

Grade A raw milk: Herds tuberculin tested; bacteria 60,000 per mil.

Grade A pasteurized: Bacteria 30,000 per mil.

Grade B pasteurized: Bacteria 100,000 per mil.

Grade C pasteurized: Bacteria 300,000 per mil.

The dairy score card, based on equipment and methods, also enters into the above calculations.

Certified milk.—Certified milk, cream, skim milk, etc., is usually defined as “milk required to be free from tuberculosis and to contain not more than 10,000 bacteria per mil, class A, and 100,000 bacteria per mil, class B, without pasteurization.” This milk is produced in dairies that have been inspected and approved by the commissioner of health and must be produced on farms scoring not less than 75 per cent on a score card. Cows must have been certified by health department or United States Government veterinarians to be free from tuberculosis or other diseases, not more than six months prior to the date that such milk is offered for sale. All persons or employees where such milk is produced shall be free from contagious or infectious diseases, and no persons shall be employed or permitted to work on such farm until it has been determined that they are not typhoid or diphtheria carriers. All other conditions, such as cleanliness of the herd, manner of feeding, milking, storing, cooling, etc., and also construction of buildings, etc., must be in accordance with approved sanitary designs and outlines. The milk shall be obtained, strained, and immediately cooled to 60 F. or below, until delivered to consumer. It is contained in tightly closed or capped bottles.

Inspected milk.—Conditions not so good as those given for certified milk; bacteria: 100,000 per mil.

Cream.—Gravity cream, or cream which separates on standing has been largely replaced by separator cream in which centrifugal force is applied to a stream of milk entering the device known as a separator, which continuously separates it into cream and skim milk, the relative richness of the cream and freedom of the skim milk from butter fat being regulated by the speed of the centrifugal motion.

Recently there has come into use an apparatus known as a homogenizer, in which the milk is subjected to the influence of great pressure, and is at the same time forced through diaphragms containing minute perforations. The normal size of the fat globules is much reduced and the physical properties of the cream or milk are modified to such an extent that the subsequent separation of cream takes place much more slowly and the supernatant layer is bulkier and less rich in butter fat; therefore, the milk appears richer, judging from the apparent amount of cream which separates.

Score-card standards for cream are the same as for milk. Bacterial standards for cream are five times those for milk. Cream contains 15 to 20 per cent butter fat.

Two general methods of treating milk are in use for the prevention of disease: (a) Boiling, and (b) pasteurization.

(a) *Boiling.*—Milk may be sterilized by boiling for 5 or 10 minutes, but the objections to this are: First, the milk sugar is somewhat scorched; the casein and albumin are hardened; the salts of calcium, magnesium, and phosphorus are precipitated; and, as a result, the digestibility and nutritive value of the milk are impaired and the enzymes destroyed. Second, this method reduces its commercial value, as the cream will not rise as well; what is known as the “cream line” is interfered with or entirely destroyed.

(b) *Pasteurization*.—This article is not for the purpose of entering into any extended or elaborate scientific description of milk pasteurization.

The application of heat to preserve foodstuffs has been employed for an unknown length of time.

Scheele, in 1782, discovered that vinegar could be preserved against spoiling by heating it. In 1870 Louis Pasteur discovered that the heating of wines and beers destroyed certain forms of life, which gave bad flavors to the liquors. He found that by heating to a temperature of 158° to 176 F. and holding the fluids at this temperature for a period of time these "disease germs," as he called them, were destroyed. In consequence of this discovery, the heating of wines and beers became very generally practiced in Europe and the process was termed "pasteurization," from the name of the man who originated it. In Denmark the process of heating was applied to milk to destroy germs and in order to improve the flavor and quality of the butter produced there.

In this country the destruction of bacteria by boiling milk to be used for infant feeding was recommended in the seventies by Dr. Jacobi.

As before stated, the heating of milk which was to be used in its fluid state for market purposes was at first employed by milk dealers for the purpose of preventing or delaying the souring of milk due to fermentation produced by the enormous number of germs in milk. Milk which had previously been so badly handled or so insufficiently refrigerated as to make it unmarketable and a loss to the dealer was thus saved. In consequence of the faulty methods employed and the motive which actuated the dealers, pasteurization was first looked upon with disfavor. However, after careful consideration of the milk problem, it became evident that it was practically impossible to procure for the entire milk-control supply of a city a safe raw product, so at length pasteurization of milk was favored as a safeguard against dangerous infection.

It has been demonstrated that when milk has been heated to a temperature of 140 F. and held at that temperature for 20 minutes, or that if milk is heated to a uniform temperature of 158 F. for one minute, all of the disease-producing bacteria are killed. In view of the fact that in most commercial processes of pasteurization the temperature is likely to and does fluctuate, it is necessary to insure that all parts of the milk get the full temperature required, and this is accomplished by holding the hot milk for a known length of time to equalize the temperature.

Formerly a sliding scale, with degrees of heat and corresponding varying lengths of holding at these temperatures, was adopted; heating at 140 F. and holding for at least 20 minutes was equivalent to heating at 158 F. and holding for three minutes. This sliding scale was used owing to the commercial objection that in milk which is heated and held at high temperatures the cream will not rise as well as if it is unheated and the "cream line" is interfered with. Heating at lower temperatures for the required length of time has all the advantages and none of the disadvantages of heating at higher temperatures, so in order to make the method of pasteurization more uniform, rendering the administrative control of actual pasteurization less difficult, the rule almost universally adopted is as follows:

"Only such milk or cream shall be regarded as pasteurized as has been subjected to a temperature of from 142° to 145 F. for not less than 20 minutes."

It is desirable that the milk to be pasteurized shall, before heating, be as free as possible from bacteria, because milk which contains an excessive number of bacteria contains as a product of their growth a quantity of acids and other undesirable substances and may also contain dangerous substances which are only partially destroyed by even a boiling temperature. For this reason it is specified that milk for pasteurization shall be produced on farms scoring not less than 55 on the score card, cows shall be free from disease, properly fed, milking done in a cleanly

manner, employees free from disease, and such milk before pasteurization to contain not more than 750,000 bacteria per mil.

The process.—When done on a large scale, the milk to be pasteurized is allowed to run in a thin stream over a metal surface which is heated by hot water to the required temperature, or the milk may run through a series of metal tubes which are surrounded by hot water, bringing the temperature of all the milk up to the proper degree. Milk may also be pasteurized in a covered water-jacketed tank. It is important that all the milk be heated, since some bacteria may remain alive in it and subsequently develop rapidly throughout the whole. There are five typical forms for use in heating milk.

The Danish heater depends for its operation upon the throwing by centrifugal force of a body of milk against the inner surface of a steam-heated cylinder or drum.

Some firms make various forms of heaters in which the milk flows between two or more water-heated upright cylindrical surfaces.

In the tubular system of heating the milk flows through tubes which are inclosed in hot water jackets, the hot water flowing in a direction opposite to that in which the milk flows, thus using the maximum heating power of the water and also raising the temperature of the milk gradually to the highest point.

The tank system of heating milk is employed by having horizontal tanks surrounded by water jackets through which hot water is forced.

Another process of pasteurizing consists of heating the milk in the bottles which have previously been filled with the raw milk and sealed. Filled bottles are either placed in a tank of hot water or else subjected to a shower of hot water. From the scientific point of view, this appears to be the ideal method.

There are two general methods of holding milk after heating: First, the absolute method. By this method, the heated milk is placed in separate tanks or compartments from which it is automatically released by a mechanical device at the expiration of the time for which it is desired that the milk be held. Second, the continuous method. By this method, the heated milk is so delayed or retarded in its flow toward the cooler that it retains its temperature for varying lengths of time; these holders may be built in upright cylindrical tanks either used singly or arranged in series; the milk enters at the top and flows out at the bottom when the tanks have become filled. Horizontal tanks are sometimes used; these tanks have cross partitions which retard the flow of milk from one end to the other, or another form is the horizontal tubular holder, in which the milk flows backward and forward through a series of tubes.

In fresh milk, properly pasteurized, which immediately thereafter is properly cooled, we have an absolutely safe and palatable milk of good keeping qualities. Those germs that escape destruction are of the spore-bearing varieties, among them being putrefactive organisms, but these are present in small numbers only and are unable to develop at low temperatures, therefore, the cooling and refrigeration of pasteurized milk is most important. The product is cooled at once to a temperature of 45 F., the cooling so conducted that the milk is not exposed to possible sources of contamination. The product is inclosed in tightly capped bottles or sealed cans and kept at a temperature of 50 F. or below while stored or kept at the pasteurizing plant, bottling establishment, or milk depot.

Refrigeration and keeping.—To prevent decomposition of milk, it must be kept cool, or at below 50 F. It should not be forgotten that more dangerous changes may take place in a sterilized milk not properly cared for than in a fresh. It is important that flies be kept from milk. It is always wise to carefully wash the top and outside of a bottle of milk before opening it.

Milk may be pasteurized on a small scale by using a simple pasteurizer consisting of a tin pail having a perforated cover and containing a wire basket into which may be put a number of open bottles containing the milk. The water in the pail is heated to boiling, when the wire crate is then lowered until the bottles nearly touch the water. The milk is steamed in the open bottles for 10 minutes, when the bottles are covered and the steaming continued for 15 minutes longer. The milk must then be immediately cooled and kept on ice until used.

There is a process of sterilizing milk called buddeizing; this is accomplished by adding a small quantity of hydrogen peroxide to milk and subjecting it to a temperature of 122 F. for 20 minutes. The peroxide is driven off by the heat and the taste is unimpaired.

PRACTICAL INSPECTION OF MILK.

Navy standard specifications for milk and cream (fresh) are as follows:

The general quality of the milk requires fresh, clean, pure, pasteurized milk from healthy cows, properly fed and kept. Milk to be free from all objectionable odors and flavors. Upon analysis, at a temperature of 60 F., the milk shall have a specific gravity of not less than 1.029 and shall contain not less than 11.5 per cent of milk solids, not less than 8.5 per cent solids not fat, and not less than 3 per cent of milk fat. To be delivered in 20 or 40 quart cans or 1-quart bottles as may be specified.

The general quality of the cream requires fresh, clean, pure, pasteurized cream derived from fresh, clean, pure milk from healthy cows, properly fed and kept. Cream to be free from all objectionable flavors and odors and to contain not less than 20 per cent of milk fat. To be delivered in 1-pint or 1-quart bottles as may be specified.

Milk or cream shall be regarded as pasteurized only after it has been subjected to a temperature of from 142° to 145 F., for not less than 30 minutes. After pasteurization, the milk or cream shall be cooled immediately to a temperature of 50 F., and kept below that temperature until delivery to a Navy ship, station, or hospital. Milk to be delivered within 30 hours and cream within 48 hours after pasteurization. Contractor required to furnish satisfactory evidence from a qualified veterinary or from the board of health showing in specific terms, that the entire herd from which the milk is obtained is healthy and free from disease, that conditions surrounding the herd are hygienic and that the care and handling of the milk is sanitary.

The practical inspection of milk is limited. One should determine that the Navy Department specifications have been complied with, particularly in regard to the veterinary inspection. Upon delivery, the specific gravity and temperature of milk delivered in cans should be determined.

The hospital laboratory should examine samples of milk at frequent intervals to determine whether or not the milk has been adulterated or contains preservatives.

For adulteration.—The principal adulterations of milk are effected by removing some of the cream or by adding water. Either of these procedures naturally results in a reduction of the percentage of fats or other solids in milk.

Watered milk is determined by the fact that if both the total solids and solids not fat are abnormally low, and the proportion of fat to solids not fat about the same, or higher than in a normal milk, it is generally safe to assume that the sample has been watered.

The milk has undoubtedly been skimmed if both the total solids and the fat are well below the standard and the solids not fat nearly normal.

If a milk has been both watered and skimmed the total solids and the solids not fat are proportionally reduced below the standard, while the ratio of fat to solids not fat is abnormally low.

Of course, the addition of water to milk would lower the specific gravity and an increase in specific gravity of the milk serum or whey would indicate removal of the fats; this is also determined by observation of its refractive index using an immersion refractometer.

There are two general methods for the detection and determination of lowered fats and other solids, viz, the gravimetric and the mechanical.

The gravimetric method for fats.—A definite quantity (5 grams) is accurately weighed and then absorbed by a roll of fat-free paper and dried at not over 100 C. to remove all water. The roll then contains all the milk solids. It is placed in an extractor, washed with ether until all the fat has been removed from the paper, when the ether is evaporated and the fats so obtained are weighed.

The gravimetric method for total solids.—A definite quantity is weighed in a tared dish and evaporated in a steam oven to dryness. The weight in excess of the known weight of the dish is, of course, due to the milk solids. By subtracting the weight of the fat from the weight of the total solids we obtain the total solids other than fat, which represent the protein, sugar, and mineral matters.

The mechanical method for fats.—A definite quantity of milk (about 18 grams) is measured into a Babcock flask and 17.5 mls of sulphuric acid is added. The acid destroys the proteins, which allows the fat to rapidly collect in the graduated neck of the flask, when the latter is centrifuged. This happens because the fat is the lightest portion of the milk, and the heavier matters drive to the bottom of the flask when it is whirled around. The long neck of the flask is so graduated that the percentage of fats can be read off directly. This method is accurate within two-tenths of 1 per cent.

The mechanical method for total solids.—The lactometer above described.

Preservatives.—Formaldehyde, borax, boric acid, salicylates, benzoic acid, fluorides, and hydrogen dioxide.

Formaldehyde may be detected by the violet ring that develops at the contact point in a test tube when a few drops of milk are carefully deposited upon the surface of a small quantity of sulphuric acid containing iron.

Boric acid or borax.—A piece of filter paper which has been colored brown by soaking in turmeric, is wet with some suspected milk. The paper is then dried and a little weak ammonia dropped on it. If either borax or boric acid is present, the brown color of the paper turns green.

Hydrogen dioxide disappears within 48 hours by reduction to H_2O .

The other preservatives are seldom if ever used.

Coloring.—Artificial coloring, such as annatto or coal-tar colors, are sometimes used in milk to give a false appearance of richness.

Bacteriological tests.—The object of the bacteriological test is to determine how many living bacteria are present in one mil of the sample. This is done by the so-called "plate method." Petri dishes are cleaned and heated to a temperature of 200 C. in a hot-air oven for 1 hour, and thereby rendered dry and free from all living bacteria.

Undiluted milk is too opaque to be tested by the plate method; therefore water is added to the samples. The water used for dilution is first rendered free of living bacteria by heating at the boiling point for 1 hour.

The degree to which the milk under examination is diluted depends upon the grade of milk being tested. A poor grade of milk will usually have a greater number of bacteria present than a good grade, and therefore, to facilitate the counting, the sample is diluted to a greater degree. For pasteurized milk a 1-100 dilution is sufficient. For raw milk two dilutions are made, a 1-100 and from this a 1-1000. The milk sample is shaken vigorously 25 times in order to break up all clumps of bacteria and mix thoroughly with the milk.

One mil of each dilution is placed in a sterile Petri dish and the nutrient agar-agar is added to the plate at a temperature of 104 F. and thoroughly mixed with the diluted milk. The plates are then incubated for 48 hours at a temperature of 37.5 C. After incubation, the plates will be found to show colonies; wherever bacteria lodged there is now a small white, occasionally pigmented, spot representing an aggregation of many hundred thousand bacteria, all of which grew from a single living organism or tiny clump of organisms. The number of colonies counted on the plate, multiplied by the dilution, gives the number of bacteria per mil of the sample tested.

The examination to reveal the identity of these disease producing bacteria will not be given here.

Condensed milk; evaporated milk.—Cow's milk from which a large part of the water has been evaporated, a syrupy liquid remaining which is preserved with or without the addition of sugar. The water is removed by evaporation in a vacuum apparatus and the concentration is usually twofold. For Navy specifications this milk should be of standard quality, uniform consistency and good flavor, free from granulation or sediment. To contain not less than 25.5 per cent total milk solids and not less than 7.8 per cent of milk fat. Packed in 1-pound tins. Guaranteed to keep in any climate for a period of one year.

Evaporated cream.—Evaporated milk which has been concentrated to a higher degree than usual.

Powdered milk.—Milk may be evaporated to the condition of a dry powder by the use of special forms of apparatus in which the effect of a vacuum is supplemented by distributing the milk in a very thin layer on a large metal cylinder or allowing it to escape into a very high vacuum or hot chamber in a fine jet. It may be made from either whole milk or skim milk. Contains 26 per cent of milk fat and not more than 5 per cent of moisture.

Malted milk.—A product made by combining whole milk with the liquid separated from a mash of ground barley malt and wheat flour, with or without the addition of sodium chloride, sodium bicarbonate and potassium bicarbonate, in such a manner as to secure the full enzymic action of the malt extract and by removing water. Malted milk contains 7.5 per cent of butter fat and not more than 3.5 per cent of moisture.

Butter.—Butter is produced by agitation of milk until the fat globules in suspension coalesce into granules; agitation ruptures the cells of the globules. The mass is removed and "worked" to free the butter of buttermilk and water. Salt is added to flavor and preserve it. Naturally the more water the butter can be made to hold, the greater its weight, so gelatine and glucose are sometimes added as both substances have the quality of absorbing moisture. Butter readily absorbs odors, and rapidly becomes rancid at room temperatures, owing to decomposition of curd which can not be worked out. Butter may carry disease.

Process butter; renovated butter.—Butter which results from the melting, washing, coloring and rechurning of butter which has undergone changes, become rancid, etc. This rancid butter is collected from various sources, treated as above and sold as process butter or "butter". This butter contains not more than 16 per cent of water and at least 82.5 per cent of milk fat.

Navy specifications for butter are as follows:

Butter to be strictly fresh extra creamery, medium salted, delivered in tubs or cases, tubs having a capacity of approximately 63 pounds. A cloth circle to be placed on top of the parchment circle of each tub and covered with a fine layer of salt. Must be sweet, clean and fresh, firm and uniform, of a color not lighter than straw, and shall not be streaky or mottled.

Tinned and tub butter are made from pasteurized milk or cream none of which shall contain before pasteurization more acid in 50 mils than will be neutralized by 15 mils of a $\frac{10}{N}$ alkali solution. Moisture in the butter must not exceed 13 per cent for tinned butter and 14 per cent for tub butter. No preservative used other than common salt, $2\frac{1}{2}$ per cent.

Cheese.—Cheese is the product of solidifying milk or cream by coagulating the casein either with rennet or lactic acid and ripening same. It contains 50 per cent of milk fat. Cheese is made from milk of cows, goats, ewes, mares, etc. The milk is heated to about 80 F., then the rennet is added, and after several hours the whey is drawn off, the curd pressed until most of the whey is forced out of it, and then put away to "ripen." This process may require several months or years; it will not progress thoroughly until the proper bacteria are present and unless the conditions favorable to their growth are present.

The Navy Department specifies that "cheese shall be of No. 1 quality, whole milk, finished in well-cured flats, weighing from 28 to 38 pounds each. Firm and smooth in texture, white or colored, but not mottled. To contain not more than 39 per cent moisture. Each cheese to be well paraffined. Tinned cheese to be made from whole milk, not less than 50 per cent fat in the dry substance; to be well cured and free from mold. Put up in 'Young America' style, weighing from 8 to 11 pounds each. To be free from preservatives except salt."

Cheese should be of good quality, wholesome in appearance, and delivered in closed containers. Canned cheese will frequently be found which has undergone butyric acid fermentation on its exterior. It is very foul smelling, mushy, and unwholesome but removal of the exterior layer will uncover wholesome cheese; however, if the cheese is black on the outside and particularly if there is roughness of the interior of the can, it indicates that the metal has been attacked and the cheese is unfit for consumption.

A FEW PRACTICAL NOTES ON VEGETABLES.

(Vegetables will be taken up in detail in the next paper on food inspection.)

In closing this paper, it has been considered advisable to add a few general notes on the inspection and storage of vegetables, canned goods, jams, etc.

Canned goods in general.—Meats, milk, cheese, and vegetable foods are preserved in cans.

Cans should be carefully handled. Badly dented cans may have small punctures. A can from which the fluid has leaked out may be detected by shaking the can; its contents will rattle and the can will appear light in weight. Tops of cans should present a slight concavity which results from sealing the can while the contents are hot, and the subsequent contraction upon cooling. It is well to reject cans having more than two solder spots indicating imperfection in the first or second sealing. Any can whose top presents a convex surface is "blown" and unsafe, since the convexity usually is due to gases of decomposition of the contents. When the integrity of the can is broken bacterial growth may result in poisoning or acids may be formed which attack the tin on the inner surface of the can, known by the blackening of the tin; if the contents of such a can are eaten it may cause tin poisoning.

Vegetables, fruits, etc.; inspection and storage methods.—Although vegetables and fruits for naval use are usually supplied by wholesale firms and handled in original packages and crates, at some of the smaller hospitals this may not be the practice and a few words in general about this class of foodstuffs may not be amiss here.

Of course, it is doubtful if we can always obtain the source of vegetables and fruits, so this matter may be passed over. Most cities have a municipal code to protect the consumer from the sale of unwholesome foodstuffs by imposing fines for offering or exhibiting for sale, or having in one's possession, charge, or control any article of human food or foodstuffs, either raw, manufactured, or otherwise prepared, which has become putrid, decayed, infected, contaminated or unwholesome for human consumption. Also, regulations are in effect imposing fines for having in possession for the purpose of selling or offering for sale any basket, box, barrel, bag, or other package of fruit, berries, or vegetables of any kind, the contents of which are not of uniform quality and size throughout.

Navy Department specifications are prepared for the following vegetables in season:

Green vegetables.—Decomposing green vegetables and fruits should not be accepted, as they are unwholesome and can not be preserved.

Turnips, close trimmed.

Carrots, close trimmed.

Tomatoes.

Beets, close trimmed, unwashed.

Onions, green, trimmed, with about 1 inch of top and no roots.

Squash.

Summer squash.

Pumpkins.

String beans.

Lima beans, shelled.

Green peas, in pods.

Corn, green, sugar, on ear, in husks.

Spinach.

Cauliflower, close trimmed.

Lettuce, well headed.

Asparagus, in bunches.

Radishes, in bunches.

Rhubarb, in bunches, leaves trimmed.

Parsnips.

Eggplant.

Potatoes.

INSPECTION.

Potatoes.—Examiner should make due allowance for a small percentage of mechanical injuries and for small potatoes. Potatoes less than 2 inches in diameter should not be accepted, as they can not be readily peeled by hand nor can they be pared by the mechanical peeler. Potatoes which show a large percentage of decay or attack by worms should be rejected. Large potatoes should be cut in halves at random as they are frequently diseased and have large cavities in their interiors surrounded by dark areas. Potatoes should be clean, as dirt is heavy and makes weight, and potatoes are sold by the pound.

Sound potatoes of similar varietal characteristics, practically free from dirt or other foreign matter, frost injury, sunburn, second growth, cuts, scabs, blight, dry rot and damage by disease, insects, or mechanical means; minimum diameter of round varieties $1\frac{7}{8}$ inches and of long varieties $1\frac{3}{4}$ inches; 5 per cent by weight of any lot may be under size, in order to allow for variation incident to commercial grading; excessively large potatoes or those that weigh less than 4 ounces shall not be included; potatoes are delivered in sacks, barrels, and crates. (Navy specifications.)

Turnips, carrots, parsnips, onions, etc.—Delivered free of their tops and should not show wrinkled appearance characteristic of those vegetables which have long been out of the ground and dried up. Onions should be of select sound bulbs of No. 1 quality, hard and firm, tops well

ripened down, free from sprouts or growing stocks. Onions that will pass through a $1\frac{1}{2}$ -inch ring to be excluded, delivered in sacks, barrels and crates.

Rhubarb should be delivered free of leaves.

Sweet potatoes.—Sufficiently large to be pared properly by hand and should not consist of nodules, or irregular long tubers of small diameters. Flesh should be almost white to yellow, depending upon variety, and should show no black mottling characteristic of frosting.

Cabbage, celery, etc.—Good quality and fresh; reject celery, cabbage, or lettuce which is badly blackened by mechanical injury, provided such blackened portions constitute a considerable percentage of the weight of the delivery. Cabbage should be of selected stock, solid heads, medium size, closely trimmed and free from all burst stock, delivered in crates, not more than 125 pounds each.

Fruits; citrus fruits.—Oranges, grapefruit, and lemons should show a clear, rounded, succulent oily skin, which should not be too thick. It should not be wrinkled and hard, which condition indicates that the fruit is old. Individual pieces should be heavy, as the light orange or grapefruit is of poor quality and usually dried out. Oranges should be of standard market sorts, russet or bright, of good sweet flavor, sound and fresh. Well packed in best commercial manner in new boxes containing 150–176 oranges each. Not more than 5 per cent of contents of any box to be imperfect. Lemons to be Messina, California, or Florida grown, thin skin, bright yellow in color, and free from rust. Delivered in crates, 360 to crate. Not more than 5 per cent of contents of each crate to be imperfect.

Bananas.—To average 5 inches or over in length, delivered ripe, in full bunches, stocks cut close to “hands,” above and below. Well packed in best commercial manner, sound, fresh, and of standard market sorts.

Apples.—Sour apples should not be accepted. Standard Grade A, good quality eating apples, such variety in the market at the time of selection by the supply officer are required by the Navy specifications; no apple to be less than $2\frac{1}{2}$ inches in diameter. Apples are delivered in barrels. For hospitals only, fancy western apples, packed in commercial boxes, 96 to 215 apples to the box, are on the specifications.

Fruits, fresh.—Peaches in 30-pound baskets or 6-basket carriers.

Pears in 30-pound baskets or boxes containing 40 pounds.

Cherries in usual commercial container.

Grapes in 8-pound baskets.

Berries, cranberries, watermelons, cantaloupes.

All to be delivered ripe, sound, fresh, of standard market sorts, delivered in containers sufficiently strong to exclude dirt.

Storing of foodstuffs.—Due precaution should be exercised to avoid the possibility of spoiling of perishable foodstuffs, although the hospitals usually have daily deliveries and this matter is of little importance.

Highly perishable foodstuffs, such as eggs, butter (especially in cartons), preserves packed in glass (especially olive products), preserves in cans, dried fruits, peanut butter, and fresh fruits, will not withstand heat, and should be kept cool and dry. The cause of spoilage is principally due to favorable temperature for the rapid development of bacteria. In fertile eggs there is always the additional possibility of the commencement of incubation.

Freezing of canned and bottled goods is also injurious, and such action causes broken bottles and swollen cans, and when the contents of a frozen can thaw out, the keeping qualities are greatly impaired.

In addition to keeping canned goods in a cool place, the cases should be piled in such a way that the air will circulate among them and so that they may be readily inspected to discover possible leaks.

Moisture from leaks in individual cans will extend to other cans and the rust will go through the tins. A case of goods stored on a damp floor will absorb moisture and the bottom tier of cans will soon become rusty and decay. Moisture and decay are the two very important factors in the problem of high costs. But these enemies of man can be rendered harmless by the energetic application of a little mixture of science and common sense. Success in holding over perishable foodstuffs depends primarily on the proper control of temperature, moisture, and ventilation, the three chief elements in arresting the development of decay-producing organisms. When humidity is too low the product itself loses moisture and deteriorates rapidly; when there is too much humidity, moisture is deposited on the product and conditions are made favorable for the growth of bacteria and mold. Most fruits and vegetables, with the exception of sweet potatoes and onions, require a fairly high humidity.

Cut American cheese deteriorates very rapidly and dries out, losing its flavor. The drying out may be prevented by taking a warm knife and rubbing the flat side over the surface of the cheese from which you have cut, so as to close up the pores as much as possible. A cloth saturated with salt water and laid over the cheese ends so treated will prevent the cheese from drying out and also prevent crumbling and mold.

Dried fruits to be kept in good condition must retain considerable moisture. When exposed to the air, this moisture soon evaporates, the natural sugar found in the juices crystallizes and the product changes color, becomes hard, and loses both in weight and flavor.

Olives in buckets should be well covered with brine; exposed to the air they turn dark and rapidly deteriorate. They are preserved in a brine composed of 14 ounces of salt to a gallon of water. Olives absorb odors and should be kept away from kraut, salt fish, onions, etc.

Many persons do not consider tea perishable, so as a result the wicker lead-foil-lined containers will be found most anywhere around the galley or storeroom. Tea is not subject to fermentation or decay, but from the standpoint of flavor or quality it is extremely perishable. Tea should never be exposed to the air. The most common source of deterioration of tea is the absorption of odors, absorbing oil, cheese, fish, or onion flavors. Tea should not be stored in a damp place or in a room in which changes of temperature or atmospheric conditions take place. Either evaporation or absorption of moisture will cause tea to deteriorate in quality.

Fruit jams are used in considerable quantities as a part of the Navy ration. The specifications for jams are as follows: "To be properly prepared and made in a sanitary method, from clean, sound, properly matured, whole fresh fruits. Apple juice to be made from sound, whole, fresh apples; no dried stock to be used. To be free from artificial coloring matter and preservatives of any kind except that benzoate of soda may be used in quantities not exceeding one-tenth of 1 per cent.

Jams are made according to the following formula:

	Per cent.
Fruit.....	35
Apple juice.....	15
Sugar (sucrose).....	50

For naval use jams are packed in 10-pound round tins, six tins in a case, in following assortment: Plum (greengage or damson), peach, blackberry, grape, raspberry and currant mixed (one-third raspberry; two-thirds currant), and strawberry.

REFERENCES.

- Naval Hygiene, Prior.
- Military Hygiene, Ashburn.
- Navy Department Specifications, Class 56.
- Leaflets, memoranda, booklets, orders, etc., from Boston, New York City, and Chicago boards of health.



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